UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,919	02/17/2005	Amato J Giaccia	35045 PCT USA	1460

21003 7590 07/31/2007

BAKER BOTTS L.L.P.
30 ROCKEFELLER PLAZA
44TH FLOOR
NEW YORK, NY 10112-4498

EXAMINER	
MONDESI, ROBERT B	

ART UNIT	PAPER NUMBER
1652	

MAIL DATE	DELIVERY MODE
07/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,919	GIACCIA ET AL.	
	Examiner	Art Unit	
	Robert B. Mondesi	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *June 6, 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) *1-8 and 14-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicants' election of Invention of Group III, **Claims 9-13**, in response to the restriction requirement mailed December 19, 2006 is acknowledged. Because applicants did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Therefore the requirement is still deemed proper and is made FINAL.

Status of the claims

Claims 1-33 are pending. **Claims 1-8 and 14-33** are withdrawn for pertaining to nonelected subject matter. **Claims 9-13** are presently under examination.

Priority

The current application filed on February 17, 2005 is a 371 of PCT/US03/06360 filed on 02/28/2003 which claims benefit of 60/360,689 filed on 02/28/2002.

Drawings

Drawings filed February 17, 2005 have been accepted.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn truncated variants of *DEC1/star13* polypeptide. The claims do not require that the polypeptide possess any particular conserved structure, or other distinguishing feature, such as a specific biological activity. Thus, the claims are drawn to a genus of polypeptides that is defined by an unclear functional relationship to *DEC1/star13* polypeptide. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, and any combination thereof. In this case, the only factor present in the claim that is sufficiently disclosed is that the truncated *DEC1/star13* polypeptide has *PPARγ2* promoter repressing activity. The specification does not identify any particular portion of the structure that must be characteristics of the claimed genus are not described. The only adequately described species is *DEC1/star13* polypeptide and no active variants are disclosed. Accordingly, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states, "applicant must convey with reasonable clarity to those skilled in the a14 that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed." (See page 1117.) The specification does not it clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116), As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genus of polypeptides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers* v. Revel, 25 USPQ2d 1601 at 1606 (CAFC 1993) and Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. One cannot describe what one has not conceived. See *Fiddes v. Baird,* 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF' s were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence. Therefore, only DEC1/star13 polypeptide, but not the full breadth of the claim meets the written description provision of 35 U. S.C. 112, first paragraph. Applicant is reminded that *Vas-cath* makes clear that the written description provision of 35 U.S.C. § 112 is severable from its enablement provision.

Claim 13 is a dependent claim that does not overcome the deficiencies of the independent claim that it is dependent therefrom.

Claims 9 and 13 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of inhibiting adipogenesis comprising: contacting a cell with a truncated *DEC1/Stra13* polypeptide lacking the *DEC1/Stra13* repressor domain wherein the truncated polypeptide has substantially the same *PPARγ2* promoter repressing activity as full-length *DEC1/Stra13* polypeptide in an amount sufficient to repress *PPARγ2* promoter activity, wherein expression of *PPARγ2* is reduced and adipogenesis is inhibited, **wherein the polypeptide contains the basic helix loop helix domain of *DEC1/Stra3*** does not reasonably provide enablement for a method of inhibiting adipogenesis comprising: contacting a cell with a truncated *DEC1/Stra13* polypeptide lacking the *DEC1/Stra13* repressor domain wherein the truncated polypeptide has substantially the same *PPARγ2* promoter repressing activity as full-length *DEC1/Stra13* polypeptide in an amount sufficient to repress *PPARγ2* promoter activity, wherein expression of *PPARγ2* is reduced and adipogenesis is inhibited. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The factors to be considered in determining whether undue experimentation is required are summarized In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir.1988). The court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' " (Wands, 8 USPQ2d 1404). Clearly, enablement of a claimed

invention cannot be predicated on the basis of quantity of experimentation required to make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (Wands, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the breadth of the claims, (2) the nature of the invention, (3) the state of the prior art, (4) the predictability or unpredictability of the art, (5) the relative skill of those in the art, (6) the amount or direction or guidance presented, (7) the presence or absence of working examples, and (8) the quantity of experimentation necessary. Although the quantity of experimentation alone is not dispositive in a determination of whether the required experimentation is undue, this factor does play a central role. For example, a very limited quantity of experimentation may be undue in a fledgling art that is unpredictable where no guidance or working examples are provided in the specification and prior art, whereas the same amount of experimentation may not be undue when viewed in light of some guidance or a working example or the experimentation required is in a predictable established art. Conversely, a large quantity of experimentation would require a correspondingly greater quantum of guidance, predictability and skill in the art to overcome classification as undue experimentation. In Wands, the determination that undue experimentation was not required to make the claimed invention was based primarily on the nature of the art, and the probability that the required experimentation would result in successfully obtaining the claimed invention. (Wands, 8 USPQ2d 1406). Thus, a combination of factors which, when viewed together, would provide an artisan

of ordinary skill in the art with an expectation of successfully obtaining the claimed invention with additional experimentation would preclude the classification of that experimentation as undue. A combination of Wands factors, which provide a very low likelihood of successfully obtaining the claimed invention with additional experimentation, however, would render the additional experimentation undue.

1-2 .Breadth of the claims and the nature of the invention..

In regards to the method of the invention and the breadth of the claims the broadest interpretation that applies is a method of inhibiting adipogenesis comprising: contacting a cell with a truncated *DEC1/Stra13* polypeptide lacking the *DEC1/Stra13* repressor domain wherein the truncated polypeptide has substantially the same *PPARγ2* promoter repressing activity as full-length *DEC1/Stra13* polypeptide in an amount sufficient to repress *PPARγ2* promoter activity, wherein expression of *PPARγ2* is reduced and adipogenesis is inhibited.

3-4. The state of prior art and the level of predictability in the art.

The level of predictability is low in regards to a method of inhibiting adipogenesis comprising: contacting a cell with a truncated *DEC1/Stra13* polypeptide lacking the *DEC1/Stra13* repressor domain wherein the truncated polypeptide has substantially the same *PPARγ2* promoter repressing activity as full-length *DEC1/Stra13* polypeptide in an amount sufficient to repress *PPARγ2* promoter activity, wherein expression of *PPARγ2* is reduced and adipogenesis is inhibited.

Yun et al., 2002 teach that to address whether DEC1/Stra13 could repress *PPARγ2* gene induction, we analyzed the effect of DEC1 on the *PPARγ2* promoter

activity using the 0.6 kb *PPARγ2* promoter (−603 to +62)-driven luciferase gene as a reporter for *PPARγ2* transcriptional activity. As shown in Figure 6A, full-length DEC1 represses *PPARγ2* promoter activity by 70% compared to the vector control. **Interestingly, two N-terminal fragments (N1 and N2) containing the bHLH domain show similar levels of repression to the full-length DEC1 (Figure 6A). In contrast, the two C-terminal fragments (C1 and C2) do not inhibit *PPARγ2* promoter activity. This result suggests that the bHLH domain of DEC1/Stra13 is functionally sufficient for inhibition of *PPARγ2* gene expression** (page 335, column 1, paragraph 2, lines 8-16).

5. The relative skill in the art.

The relative skill in the art as it relates to the method of the invention is characterized by that of a M.D. or Ph. D. level individual.

6-7. The amount of guidance present and the existence of working examples.

The applicants have provided guidance for the a method of inhibiting adipogenesis comprising: contacting a cell with a truncated *DEC1/Stra13* polypeptide lacking the *DEC1/Stra13* repressor domain wherein the truncated polypeptide has substantially the same *PPARγ2* promoter repressing activity as full-length *DEC1/Stra13* polypeptide in an amount sufficient to repress *PPARγ2* promoter activity, wherein expression of *PPARγ2* is reduced and adipogenesis is inhibited, **wherein the truncated polypeptide contains the basic helix loop helix domain of *DEC1/Stra3*.**

The specification in pages 17-21 provides examples, I-X that demonstrate the inhibition of the *PPARγ2* promoter activity using a truncated *DEC1/Stra13* wherein the truncated *DEC1/Stra3* contains the basic helix loop helix domain.

8. The quantity of experimentation necessary.

The amount of experimentation that is required is undue: while a method of inhibiting adipogenesis comprising: contacting a cell with a truncated *DEC1/Stra13* polypeptide lacking the *DEC1/Stra13* repressor domain wherein the truncated polypeptide has substantially the same *PPARγ2* promoter repressing activity as full-length *DEC1/Stra13* polypeptide in an amount sufficient to repress *PPARγ2* promoter activity, wherein expression of *PPARγ2* is reduced and adipogenesis is inhibited, **wherein the truncated polypeptide contains the basic helix loop helix domain of *DEC1/Stra3*** could be considered routine, a method of a method of inhibiting adipogenesis comprising: contacting a cell with a truncated *DEC1/Stra13* polypeptide lacking the *DEC1/Stra13* repressor domain wherein the truncated polypeptide has substantially the same *PPARγ2* promoter repressing activity as full-length *DEC1/Stra13* polypeptide in an amount sufficient to repress *PPARγ2* promoter activity, wherein expression of *PPARγ2* is reduced and adipogenesis is inhibited is not routine and requires more experimentation. Therefore, in view of the overly broad scope of the claims, the lack of guidance and working examples provided in the specification, and the high degree of unpredictability as evidenced by the prior art, undue experimentation would be necessary for a skilled artisan to make and use the entire scope of the claimed invention.

It must be noted that the issue in this case is the breath of the claims in light of the predictability of the art as determined by the number of working examples, the skill level of the artisan and the guidance presented in the instant specification and the prior art of record. The Applicants make and test position is inconsistent with the decisions of *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970) where it is stated that "... scope of claims must bear a reasonable correlation to scope of enablement provided by the specification to persons of ordinary skill in the art...". Without sufficient guidance, determination of having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily and improperly extensive and undue. See *In re Wands*, 858 F.2d at 737, 8 USPQZd at 1404 (Fed. Cir. 1988). Therefore, for the instant specification to be enabling, it needs to provide direction/guidance regarding an acceptable number of different truncated *DEC1/Star13* polypeptides.

Absent sufficient guidance/direction one of skill in the art would not be able to practice the claimed invention commensurate in scope with the claims. Thus, for all these reasons, the specification is not considered to be enabling for one skilled in the art to make and use the claimed invention as the amount of experimentation required is undue, due to the broad scope of the claims, the lack of guidance and insufficient working examples provided in the specification and the high degree of unpredictability as evidenced by the state of the prior art, attempting to test all the different type truncated *DEC1/Star13* polypeptides encompassed by the claimed invention would constitute undue experimentation. Therefore, applicants have not provided sufficient

guidance to enable one of skill in the art to make and use the claimed invention in a manner that reasonably correlates with the scope of the claims, to be considered enabling.

Claim 13 is a dependent claim that does not remedy the deficiencies of the independent claim that it is dependent therefrom.

Claims 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In **claim 9** PPAR needs to be spelled out in the fist instance of use. PPAR appears to be an abbreviation for "peroxisome proliferator-activated receptor".

Claims 10-13 are dependent claims that do not further clarify the impendent claim that they are dependent therefrom.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Mondesi whose telephone number is 571-272-0956. The examiner can normally be reached on 9am-5pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert B Mondesi
Examiner
Art Unit 1652

Robert B. Mon
07-26-07